



HAL
open science

The Impact of Insularity on Morphologies and Techniques. The Aceramic Neolithic Bone Tools from Khirokitia (Cyprus).

Alexandra Legrand-Pineau

► **To cite this version:**

Alexandra Legrand-Pineau. The Impact of Insularity on Morphologies and Techniques. The Aceramic Neolithic Bone Tools from Khirokitia (Cyprus).. 6th Congress of the Worked Bone Research Group, Aug 2007, Paris, France. pp.7-15. halshs-01562129

HAL Id: halshs-01562129

<https://shs.hal.science/halshs-01562129v1>

Submitted on 13 Jul 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Ancient and Modern Bone Artefacts from America to Russia

Cultural, technological and functional signature

Edited by

Alexandra Legrand-Pineau

Isabelle Sidéra

and

Natacha Buc

Eva David

Vivian Scheinsohn

with the collaboration of

Douglas V. Campana, Alice M. Choyke,

Pam Crabtree and Elisabeth A. Stone

BAR International Series 2136

2010

Published by

Archaeopress
Publishers of British Archaeological Reports
Gordon House
276 Banbury Road
Oxford OX2 7ED
England
bar@archaeopress.com
www.archaeopress.com

BAR S2136

Ancient and Modern Bone Artefacts from America to Russia: Cultural, technological and functional signature

© Archaeopress and the individual authors 2010

ISBN 978 1 4073 0677 3

Printed in England by Blenheim Colour Ltd

All BAR titles are available from:

Hadrian Books Ltd
122 Banbury Road
Oxford
OX2 7BP
England
bar@hadrianbooks.co.uk

The current BAR catalogue with details of all titles in print, prices and means of payment is available free from Hadrian Books or may be downloaded from www.archaeopress.com

The Impact of Insularity on Morphologies and Techniques. The Aceramic Neolithic Bone Tools from Khirokitia (Cyprus)

Alexandra LEGRAND-PINEAU
CNRS UMR 7055 - Préhistoire et Technologie, MAE, Nanterre, France

Abstract

Technological and use wear analyses conducted on bone industries from Khirokitia and Cap Andreas-Kastros, two key sites for the late Aceramic Neolithic period in Cyprus (Culture of Khirokitia - 7th-6th millennium cal.B.C), bring new data: the large exploitation of the fallow deer, the large proportion of needles and the preferential and continuous use of percussion and grinding for tool manufacture, which show that these bone industries evolved in a closed environment without any regular contacts with the mainland. These data confirm the knowledge on the mechanisms of formation of the Neolithic period in Cyprus which mention the progressive isolation of the communities from the end of the 9th millennium cal. B.C and the emergence of an original culture, the Culture of Khirokitia, at the beginning of the 7th millennium cal. BC.

Introduction

Thanks to the recent discoveries and research carried out in Cyprus in recent years the image we had of the mechanisms forming the Neolithic on this island is now more precise. The discovery and excavation of several sites including Parekklisha-Shillourokambos have enabled the existence to be proved on Cyprus of a Neolithic population earlier than initially supposed - from the beginning of the 9th millennium BC -, still presenting affinities with the PPNB in the Levant and Anatolia (Briois *et al.* 1997; Guilaine *et al.* 2000; Guilaine and Briois 2001; Guilaine and Le Brun 2003; Peltenburg

2003; Peltenburg *et al.* 2000; 2001; Şevketoğlu 2002; Stordeur 2003; Todd 2001; 2003; Vigne *et al.* 2003) (Figure 1). The site of Khirokitia, till then considered the first agro-pastoral village, is now used as a reference for the late phase of Cypriot Aceramic Neolithic, between the 7th and the first half of the 6th millennium BC (Le Brun 2001a) (Figure 2). With the Culture of Khirokitia several insular cultural characteristics developed while elements of near-east tradition disappear progressively. Thus, at Khirokitia the constructions were circular in plan whereas the quadrangular plan had already been adopted on contemporary sites in the Near-East; ware made from stone had no equivalent in the Near-East where ceramics

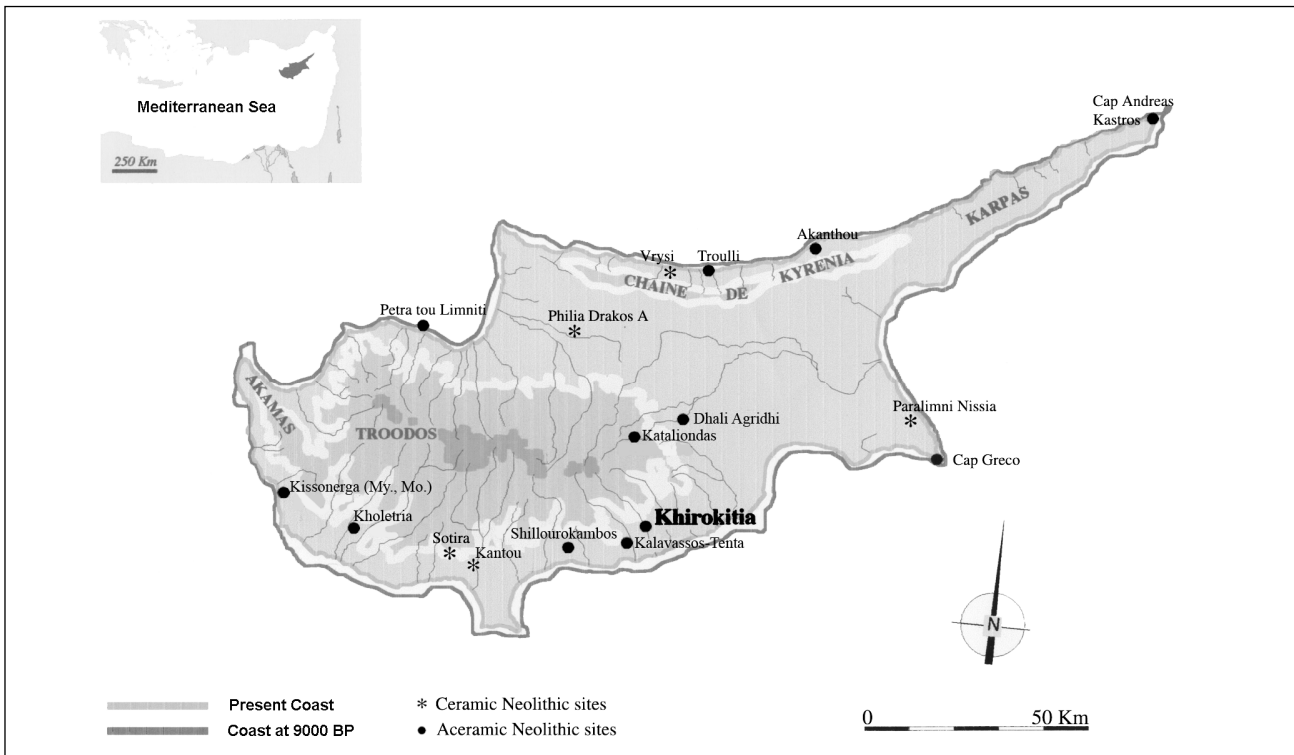


Figure 1: Map of Cyprus (adapted from Gomez and Pease 1992).

Sites	Phase/Période/Niveau	BP	BC
Parekklisha-Shillourokambos Briois <i>et al.</i> 1997, p. 96-97	Phase ancienne A	9 310 ± 80	8 521 - 8 113
		9 205 ± 75	8 114 - 8 049
	Phase ancienne B	9 110 ± 90	8 347 - 7 973
		8 930 ± 75	8 083 - 7 729
		8 655 ± 65	7 884 - 7 543
	Phase moyenne B	8 760 ± 80	7 940 - 7 593
	Phase récente	8 125 ± 70	7 300 - 6 791
Kalavassos-Tenta Todd 1987, p. 117	Période 5	9 240 ± 130	8 600 - 8 000
	Période 4	7 430 ± 90	6 420 - 6 040
	Période 4	7 120 ± 90	6 160 - 5 740
	Période 4/3	7 380 ± 100	6 390 - 6 000
	Période 4/3	6 300 ± 80	5 430 - 5 050
	Période 3	7 250 ± 100	6 250 - 5 860
	Période 3	7 110 ± 90	6 160 - 5 730
	Période 2	8 480 ± 110	7 900 - 7 100
	Période 2	8 020 ± 90	7 250 - 6 600
Khirokitia (fouilles récentes) Le Brun 1994, p. 27-29, 1988	Niveau F	7 470 ± 140	6 550 - 5 950
	Niveau F	7 930 ± 130	7 250 - 6 450
	Niveau C	7 000 ± 150	6 200 - 5 550
	Niveau III	7 100 ± 150	6 200 - 5 600
	Niveau III	6 930 ± 90	5 945 - 5 615
Cap Andreas-Kastros Le Brun 1981, p. 71	Niveau VI	7 775 ± 125	7 050 - 6 350
	Niveau V	7 450 ± 120	6 460 - 6 020

Figure 2: Datings (from Clarke *et al.* 2007, fig. 2.2, 17).

were already known, and the lithic industry was essentially based on blades made from local raw materials (Astruc 2002; Le Brun 1986; 1989a; 1994).

One of the objectives of the technological and functional study on the bone Khirokitia industry, the most important Cypriote series (2317 objects in total), is to show what within the forms and technical practices - raw material selection, manufacturing techniques and methods used, and the objects' material functions - is shared with the Near-East or peculiar to insular know-how (Legrand 2007). A comparison based on bibliographic data with the very well documented industries of the early PPNB in the early Neolithic of the North Levant (from the North of the Mediterranean coast to the Middle Euphrates), of the central Levant (including a part of the Valley of the Orontes and of the Litani), of the South Levant (between Sinai to the south and the basin of Damascus to the north, the Mediterranean to the west and the margins of the Arabian desert to the east), of the upper Valleys of the Tigris and the Euphrates, Anatolia and the Zagros (which borders to the east the Jezireh and the Mesopotamian Plain), is considered (Figure 3).

Archaeological Context

The village of Khirokitia is located in the southern part of Cyprus, 6km as the crow flies from today's coast. Its total area is estimated to be about 2 hectares of which 4000m² have been excavated (old excavation by Porphyrios Dikaios and recent excavation by Alain and Odile Le Brun) (Hesse and Renimel 1978; Le Brun and Daune-Le Brun 2003). A long sequence attributed to the late Aceramic Neolithic has been recognised including two occupations (Le Brun 1984; 1988; Le Brun and Daune-Le Brun 2003). The first occupation consists of the primitive

village of Khirokitia (East sector). The second occupation is located westward beyond a limit constituted by a wall (West sector). The Khirokitia bone industry has yielded 2317 pieces (recent excavations from 1977 to 2003) with a majority of finished products (n = 2210, i.e. 95.38% of the total) and very few manufacturing wastes and unfinished blanks (n = 89, i.e. 4.49%). About 122 objects that have not been possible to be studied here come from earlier excavations (Dikaios 1953, 293-296).

An industry that marks a break with near-eastern traditions

The selection of raw materials

Long bones, metapodials in particular (94.88% of the long bones identified) were mainly used for Khirokitia bone industry. The ulnas, tibias and ribs are rarely selected. So the selection of raw materials and anatomic parts was relatively strict, the more so as the bones in the animal remains represent all the bones in the skeleton (personal communication Simon Davis). This systematic selection also marked the animal species. Four main species have been identified on the site: fallow deer (*Dama mesopotamica*), sheep, goats, and pigs (Davis 1984). Fallow deer and caprine remains are the most common. The determination of the animal species that were used for manufacture tools, effected in collaboration with Simon Davis, discloses a clear predominance of fallow deer over the other species (n = 279, i.e. 69.75% of species determined), despite a restricted sample (400 attributions, i.e. 17.26% of the whole of the industry) (Table 1).

This predominance marks all the Khirokitia stratigraphic sequence (Figure 4a). However, from the late levels of

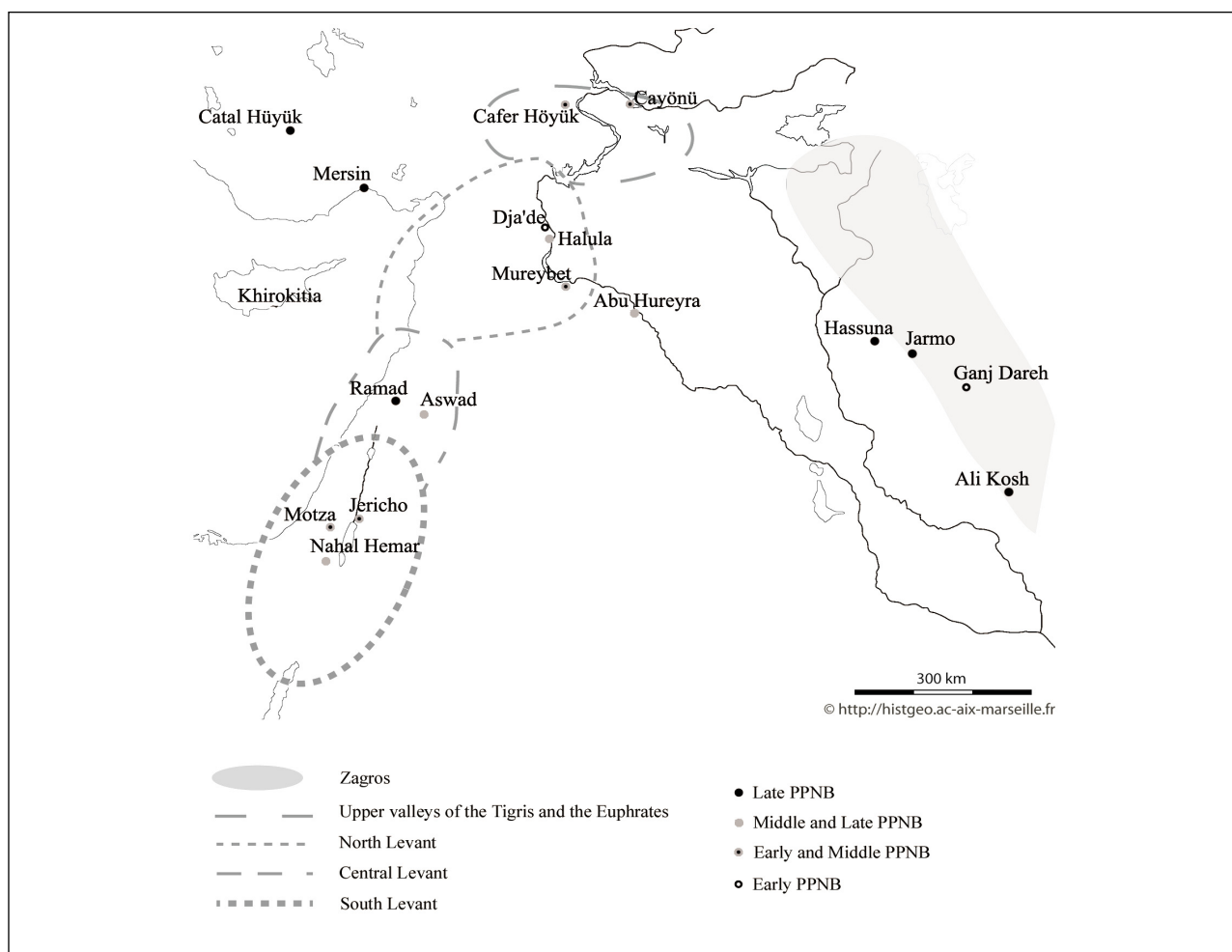


Figure 3: Map of the Near-East.

Animal Species		N	%
Fallow deer		279	69.75
Caprine	Sheep	38	29.25
	Ind.	79	
Pig		2	0.5
Bird		1	0.25
Fish		1	0.25
Total		400	100

Table 1: Khirokitia - Animal species exploited for the industry.

the Aceramic Neolithic an important fall in fallow deer among the animal remains appears while the proportion of caprines increases (Davis 2003) (Figure 4b). The fallow deer's diminution does not seem to have had any effect on the selection of animal species for manufacturing the tools: whether due to maintenance of a deeply rooted tradition or to resources sufficient to meet needs – for the time being no hypothesis is privileged. Nevertheless, it is admitted that the raw material selection

methods meet the strict criteria characterising bone production at Khirokitia. If these first results are compared with the data available for the Near-East it is evident strong exploitation of bone is also a feature marking the industries of the North and South Levant from the early to the late PPNB (Le Dosseur 2006; Stordeur 1988a). Thus, the Khirokitia and Levant industries could belong to the same tradition of economic and social processes. A tradition that could also mark the selection of anatomic parts since - as in Cyprus - metapodials are widely used for manufacturing tools in the North and South Levant from the early to the middle and late PPNB (Le Dosseur 2006, 608-609). On the other hand, when the Khirokitia industry is compared to the Anatolia industries differences appear. In south-east Anatolia in the early - middle PPNB (at Cafer Höyük and Çayönü) as in south-west Anatolia in the early Neolithic (at Hacilar) bone exploitation remained preponderant but the use of antler was more important. Moreover, making tools from tibias was more common in south Anatolia in the late PPNB at the sites of Çatal Höyük and Mersin (Garstang 1953; Mellaart 1964; 1967) as in north Anatolia in the early Neolithic on the site of site of Ilipinar (Marinelli 1995).

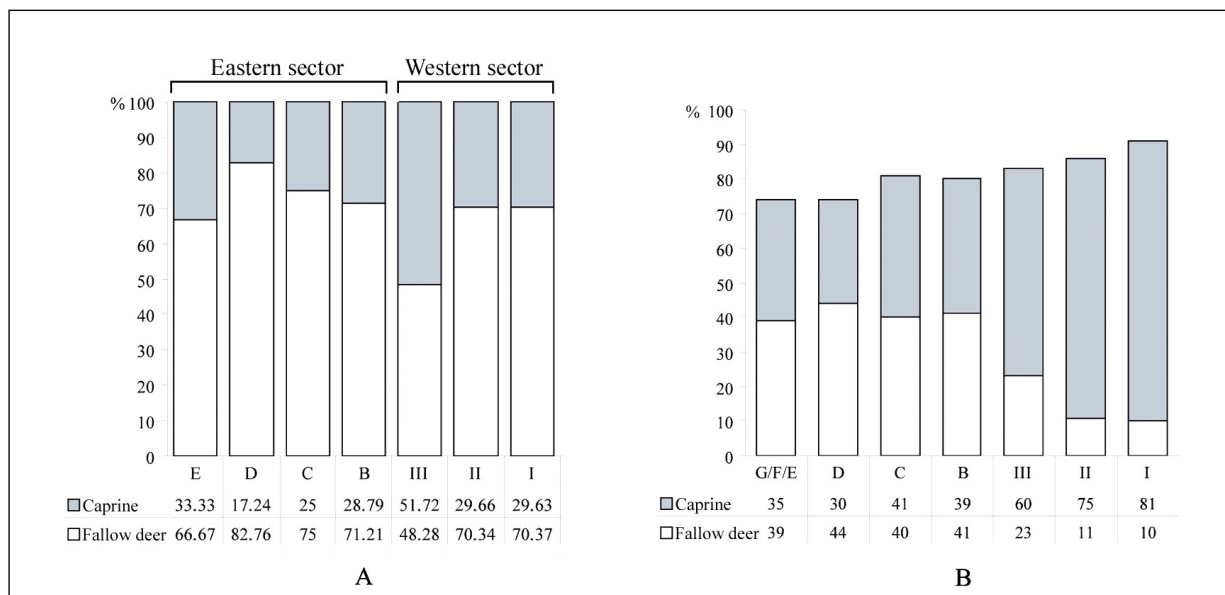


Figure 4: Khirokitia; **A)** selection of caprines and fallow deer by architectural level (n=327). The level E is the earliest architectural level studied here. The layer 2 corresponds to the occupation of the site in the ceramic Neolithic; **B)** frequency by level of fallow deer and caprine bones in the animal remains (adapted from Davis 2003, fig. 6).

The types of object

Points constitute the essential part (96.34%) of Khirokitia tools, which is also one of the principal characteristics of the PPNB industries in the Near-East. On the other hand, Khirokitia tools are distinguished by a quite unique proportion of needles (624 needles in total, i.e. 42.28% of bone tools) (Figure 5). Edged tools are not so common (3.66% of the tools). Lastly, toothed objects, tubular elements, few handles, and various indeterminable objects complete the Khirokitia assemblage. Among these tools and objects some were particularly significant in the Near-East on a cultural level; this is especially the case for the toothed objects and tubular elements. The toothed objects made from split ribs found at the site of Mureybet (PPNA - early PPNB, North Levant) (Stordeur 1974), are also found with some variants for the late PPNB in the South Levant on the site of Ramad (de Contenson 2000) and in the Zagros at the site of Jarmo (Braidwood *et al.* 1983). The toothed objects of Khirokitia differ from those of Mureybet in the support chosen - long bones in this case (Figure 6). Moreover, they are only found at Khirokitia in the earliest levels of the occupation before disappearing completely.

The tubular elements are numerous in the North Levant, at Mureybet and Halula (middle - late PPNB), in the South Levant, the site of Aswad (middle PPNB) (Aurenche and Cauvin 1982; Stordeur 1978; 1982; 1995; 1996;), in the Zagros, at Ganj Dareh (early PPNB), and Ali Kosh and Jarmo (late PPNB) (Braidwood *et al.* 1983; Hole *et al.* 1969; Stordeur 1994) but also in Anatolia, at Cafer Höyük (early - middle PPNB) and at Ilipinar (early Ceramic Neolithic) (Marinelli 1995; Stordeur 1988a). The tubular elements are not very common at Khirokitia but more numerous proportionally at Cape Andreas-

Kastros, another reference site for the late Aceramic Neolithic located by the sea at the extreme east of the island in the Karpas peninsula (Legrand 2007).

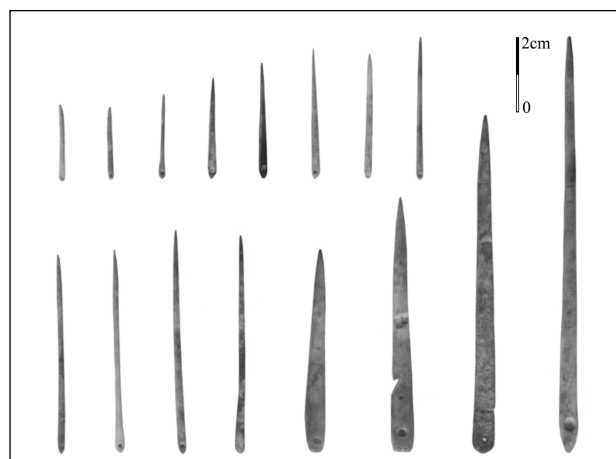


Figure 5: Khirokitia - Needles (photo: A. Legrand-Pineau).

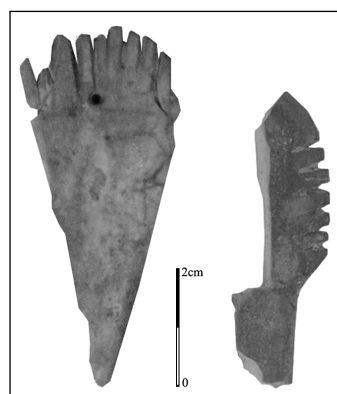


Figure 6: Khirokitia - Toothed objects (photo: A. Legrand-Pineau).

Other cultural markers present in the Near-East are absent from the Cypriot industries: the hooks and the spoons (Sidéra 1998; 2005). The hooks principally characterise the early and middle PPNB of south-east Anatolia (Cafer and Çayönü) (Redman 1973; Stordeur 1988a) even if a few examples have been identified in the North Levant, at Dja'de (early PPNB), Halula (middle - late PPNB), Abu Hureyra (middle - late PPNB) and in the South Levant, at Nehal Hemar (middle - late PPNB) (Coqueugniot 2000; Moore *et al.* 1975; Stordeur 1996). Their presence is also found in the early Neolithic in Anatolia at the sites of Ilipinar and Hacilar (Marinelli 1995; Mellaart 1964; 1967; 1970).

Spoons, manufactured from the Natufian (Schroeder 1991; Stordeur 1988b), above all characterise the assemblages of the late PPNB in south Anatolia (Çatal Hüyük, Mersin and Hayaz Höyük) and those of the early Neolithic in North Anatolia (Pendik, Ilipinar) (Clason 1985; Garstang 1953; Marinelli 1995; Mellaart 1964; 1970; Özdoğan 1983).

Among the range of types and morphologies met on the continental sites, some examples of which have been exposed, only a few have been identified at Khirokitia: points, needles, edged edges, toothed objects and tubular elements. This is a restricted set within which two types of tools in particular were manufactured: the points and the needles. Additionally, representatives of the near-eastern tradition are few and far between in this assemblage, whether modified or rapidly abandoned – as is the case for the toothed objects. Just as the methods for selecting raw materials seem to show, the typological analysis of the Khirokitia industry confirms the establishment in Cyprus of local technical procedures and new skills. What of the manufacturing techniques and methods implemented?

Manufacturing techniques

Splinter points obtained by direct percussion are in the majority at Khirokitia (62% of types of points). Generally, the shaping on these points is not extensive, limited to the active part and done by abrasion. Other techniques such as indirect percussion and sawing could be combined to manufacture points, and lead to various methods being constituted depending on the localisation and the extension of sawing on the blank (Legrand 2005; Sidéra 2004). In this case abrasion remained the most used shaping technique and could extend to the mesial and proximal parts. The edged tools were manufactured in the same way.

The splinter and half-metapodial points are also frequent in the PPNB industries (for example, Braidwood *et al.* 1983; Garstang 1953; Hole *et al.* 1969; Lechevallier 1978; Le Dosseur 2006; Marinelli 1995; Voigt 1983). But as opposed to what has been observed in Cyprus, shaping by shaving is favoured on the continent (Stordeur 1984,

137). The insular communities thus preserved the main manufacturing techniques used on the continent: percussion, sawing, abrasion, and shaving but privileged a few such as percussion and abrasion.

We can finish with the issue of techniques by taking the example of needles. The techniques used for obtaining the blanks for manufacturing needles are unknown at Khirokitia, for lack of manufacturing waste. On the other hand, the perforating techniques are better documented. The eyes were made by hand rotation or drill (Figure 7). A single example found in the first levels of the occupation shows a quite different method also found on the site of Mureybet (North Levant): longitudinal incision (Stordeur 1978) (Figure 8). This method was then identified during the middle PPNB, at Halula, then in the early - middle PPNB, in South-East Anatolia in Cafer Höyük and Çayönü, and in the central Levant in the late PPNB (Aswad) (Stordeur 1988a; 1995; 1996). It is to be noted that in the South Levant at the sites of Motza (end of early PPNB - middle PPNB) and Nahal Hemar (middle - late PPNB), this method has been identified on flat tools (Le Dosseur 2006, 374-457).



Figure 7: Khirokitia - Perforation by alternating rotation (photo: A. Legrand-Pineau).

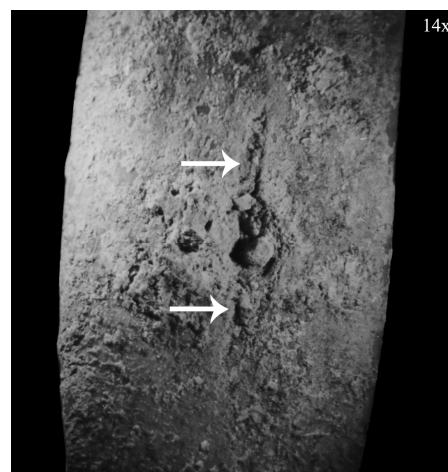


Figure 8: Khirokitia - Perforation by longitudinal incision (arrows) (photo: A. Legrand-Pineau).

Conclusion

Comparing the industry of Khirokitia with those of the Near-East gives answers that help resolve the issue of how the Cypriot industries were formed. It is undeniable that from a range of forms and techniques identified in the industries of the Levant, the upper Valleys of the Tigris and the Euphrates, the Zagros and Anatolia these communities drew on several elements, some of which are especially significant on the cultural level: toothed objects, tubular elements, perforation by longitudinal incision, heat treatment, etc. If some of them lasted throughout the Khirokitia late Aceramic Neolithic, others, on the contrary, quickly disappeared from the early levels - such as the toothed objects and perforation by longitudinal incision. In parallel, the development and systematisation can be seen of the technical processes - choice of bone and specie, and the use of percussion, abrasion and perforation by rotation - that played a role in characterising the Khirokitia bone industry. A process that sifted out tools and techniques of near-eastern origin seems therefore to have quickly established itself and could confirm the hypothesis that the insular communities developed in a certain isolation without a regular external contribution (Le Brun 1986; 1989b). The break with the continental identity seems to have occurred before the rise of the Khirokitia Culture during the evolution of the Neolithic on the island between the 9th and 7th millennia BC: so the Khirokitia Culture bone industry would be the result of a local evolution.

Acknowledgements

I should like to thank Alain and Odile Le Brun for having entrusted me with the study of the bone industries at the sites of Khirokitia and Cape Andreas-Kastros, as well as Simon Davis for his help with the attributions.

This text has been translated from its original French version by Timothy Seller.

Alexandra Legrand-Pineau

CNRS UMR 7055 « Préhistoire et Technologie »
Maison de l'Archéologie et de l'Ethnologie
21 Allée de l'Université
92000 Nanterre
France
alexandra.legrand@mae.u-paris10.fr

References cited

Astruc, L. 2002. *Analyse fonctionnelle et spatiale de l'industrie lithique de Khirokitia (Néolithique précéramique, Chypre)*. Paris, Éditions CNRS.

Aurenche, O. et Cauvin, M.-C. 1982. Qdeir I, campagne 1980 : une installation néolithique du VII^e millénaire. *Cahiers de l'Euphrate*, 3, 51-77.

Braidwood, L., Braidwood, R., Howe, B., Reed, C. and Watson, P. 1983. *Prehistoric Archaeology along the Zagros Flanks*. Chicago, Oriental Institute Publications, 105.

Briois, F., Gratuze, B. et Guilaine J. 1997. Obsidienne du site néolithique précéramique de Shillourokambos. *Paléorient*, 23(1), 95-112.

Clarke J., McCartney C. and Wasse A. 2007. *On the Margins of Southwest Asia. Cyprus during the 6th to 4th Millennia BC*. Oxford, Oxbow Books.

Clason, A.T. 1985. The Bone and Antler Objects of Hayaz Höyük. *Anatolica*, 12, 43-59.

Coqueugnot, E. 2000. Dja'de (Syrie), un village à la veille de la domestication (seconde moitié du IX^e mill. av. J.-C.), in J. Guilaine (ed.), *Premiers paysans du monde, Naissance des agricultures*. Paris, Éditions Errance, 61-80.

Davis, S. 1984. Khirokitia and its Mammal Remains, a Neolithic Noah's ark, in A. Le Brun (ed.), *Fouilles récentes à Khirokitia (Chypre) 1977-1981*. Paris, Édition Recherche sur les Civilisations, Mémoire n° 41, 147-162.

Davis, S. 2003. The Zooarchaeology of Khirokitia (Neolithic Cyprus), Including a View from the Mainland, in J. Guilaine et A. Le Brun (eds.), *Le Néolithique de Chypre*. Actes du Colloque International, organisé par le Département des Antiquités de Chypre et l'École Française d'Athènes, Nicosie 17 au 19 mai 2001. Paris, Bulletin de Correspondance Hellénique supplément 43, 253-268.

De Contenson, H. 2000. *Ramad, site néolithique en damascène (Syrie) aux VIII^e et VII^e millénaires avant l'ère chrétienne*. Beyrouth, Institut Français d'Archéologie du Proche Orient. Bibliothèque archéologique et historique, tome 157.

Dikaios, P. 1953. *Khirokitia. Final Report on the Excavation of a Neolithic Settlement in Cyprus on behalf of the Department of Antiquities 1936-1946*. London, Oxford University Press, Monographs of the Department of Antiquities of the Government of Cyprus n° 1.

Garstang, J. 1953. *Prehistoric Mersin. Yümük Tepe in Southern Turkey*. Oxford, Clarendon Press.

Gomez, B. and Pease, P. 1992. Early Holocene Cypriot Coastal Palaeography. *Report of the Department of Antiquities*, 1-8.

- Guilaine, J., Briois, F., Vigne, J.-D., Carrère, I., Willcox, G. et Duchesne S. 2000. L'habitat néolithique pré-céramique de Shillourokambos (Parekklisha, Chypre). *Bulletin de Correspondance Hellénique*, 124(2), 589-594.
- Guilaine, J. and Briois, F. 2001. Parekklisha-Shillourokambos: An Early Neolithic Site in Cyprus, in S. Swiny (ed.), *The earliest prehistory of Cyprus from colonization to exploitation*. Boston, Caari Monograph Series, 5, 37-54.
- Guilaine, J. et Le Brun, A. 2003. Avant-propos, in J. Guilaine et A. Le Brun (eds.), *Le Néolithique de Chypre*. Actes du Colloque International, organisé par le Département des Antiquités de Chypre et l'École Française d'Athènes, Nicosie 17 au 19 mai 2001. Paris, Bulletin de Correspondance Hellénique supplément 43.
- Hesse, A. et Renimel, S. 1978. Reconnaissance des limites du site Néolithique de Khirokitia (Chypre) d'après les distributions superficielles des vestiges et la résistivité du sol. *Revue d'Archéométrie*, 2, 5-18.
- Hole, F., Flannery, K. and Neely, J. 1969. *Prehistory and Human Ecology of the Deh Luran Plain: an Early Village Sequence from Khuzistan – Iran*. University of Michigan, Memoire n° 1 of the Museum of Anthropology.
- Le Brun, A. 1981. *Un site néolithique précéramique en Chypre : Cap Andreas-Kastros*. Paris, Recherche sur les Civilisations Mémoire n°5.
- Le Brun, A. 1984. *Fouilles récentes à Khirokitia (Chypre) 1977-1981*. Paris, Édition Recherche sur les Civilisations, Mémoire n° 41.
- Le Brun, A. 1986. Khirokitia : une Civilisation Originale ? in *Cyprus between the Orient and the Occident*, Acts of the International Archaeological Symposium, Nicosie, 8-14 septembre 1985, 1-11.
- Le Brun, A. 1988. La stratigraphie de Khirokitia et les nouvelles dates C14. *Report of the Department of Antiquities*, 25-28.
- Le Brun, A. 1989a. *Fouilles récentes à Khirokitia (Chypre) 1983-1986*. Paris, Édition Recherche sur les Civilisations, Mémoire n° 81.
- Le Brun, A. 1989b. Le Néolithique de Chypre et sa relation avec le PPNB du Levant. *Paléorient*, 15/1, 161-167.
- Le Brun, A. 1994. *Fouilles récentes à Khirokitia (Chypre) 1988-1991*. Paris, Édition Recherche sur les Civilisations.
- Le Brun, A. 2001a. At the Other End of the Sequence: The Cypriot Aceramic Neolithic as Seen from Khirokitia, in S. Swiny (ed.), *The earliest prehistory of Cyprus from colonization to exploitation*. Boston, Caari Monograph Series, 5, 109-118.
- Le Brun, A. 2001b. Khirokitia, village néolithique pré-céramique de Chypre, in J. Guilaine (ed.), *Communautés villageoises du Proche-Orient à l'Atlantique (8000-2000 avant notre ère)*. Paris, Éditions Errance, 53-62.
- Le Brun, A. et Daune-Le Brun, O. 2003. Deux aspects du Néolithique Pré-céramique Récent de Chypre : Khirokitia et Cap Andreas-Kastros, in J. Guilaine et A. Le Brun (eds.), *Le Néolithique de Chypre*. Actes du Colloque International, organisé par le Département des Antiquités de Chypre et l'École Française d'Athènes, Nicosie 17 au 19 mai 2001. Paris, Bulletin de Correspondance Hellénique supplément 43, 45-60.
- Le Dosseur, G. 2006. *La néolithisation au Levant Sud à travers l'exploitation des matières osseuses. Etude techno-économique de onze séries d'industries osseuses du Natoufien au PPNB récent*. Unpublished PhD Thesis, University of Paris I.
- Lechevallier, M. 1978. *Abou Gosh et Beisamoun, deux gisements du VIIe millénaire avant l'ère chrétienne en Israël*. Mémoires et Travaux du Centre de Recherches Préhistoriques Français de Jérusalem, n° 2, Association Paléorient.
- Legrand, A. 2005. New Evidence on the Bone Reduction Techniques from Khirokitia – Cyprus (7th millennium cal. B.C.), in H. Luik, A.M. Choyke, C.E. Batey and L. Lõugas (eds.), *From Hooves to Horns, from Mollusc to Mammoth, Manufacture and Use of Bone Artefacts from Prehistoric Times to the Present*, Proceedings of the 4th Meeting of the ICAZ Worked Bone Research Group, Tallinn 26 – 31 August 2003. Tallinn, Muinasaja teadus 15, 105-112.
- Legrand, A. 2007. *Fabrication et utilisation de l'outillage en matières osseuses du Néolithique de Chypre : Khirokitia et Cap Andreas-Kastros*. Oxford, BAR International Series 1678.
- Marinelli, M. 1995. The Bone Artifacts of Ilipinar, in J. Roodenberg (ed.), *the Ilipinar Excavation I. Five seasons of fieldwork in Northwestern Anatolia 1987-1991*. Institut Historique et Archéologique néerlandais d'Istanbul, n° 72, 121-142.
- Mellaart, J. 1964. Excavations at Çatal Hüyük. *Anatolian Studies*, 14, 39-119.
- Mellaart, J. 1967. *Çatal Hüyük: a Neolithic Town in Anatolia*. Londres, Thames and Hudson.
- Mellaart, J. 1970. *Excavations at Hacilar*. Edinburgh, Edinburgh University Press.

- Moore, A. M. T., Hillman, G. C. and Legge, A. J. 1975. The Excavation of Tell Abu Hureyra in Syria: a Preliminary Report. *Proceedings of the Prehistoric Society*, 41, 50-77.
- Özdoğan, M. 1983. Pendik: A Neolithic Site of Fikir Tepe Culture in the Marmara Region, in R.M. Boehmer and H. Hauptmann (eds.), *Beiträge zur Alttertumskunde Kleinasien Festschrift für Kurt Bittel*, 401-412.
- Peltenburg, E. 2003. Identifying Settlement of the Xth-IXth Millenium B.P in Cyprus from the Contents of Kissonerga-Mylothkia wells, in J. Guilaine et A. Le Brun (eds.), *Le Néolithique de Chypre*. Actes du Colloque International, organisé par le Département des Antiquités de Chypre et l'Ecole Française d'Athènes, Nicosie 17 au 19 mai 2001. Paris, Bulletin de Correspondance Hellénique supplément 43, 15-34.
- Peltenburg, E., Colledge, S., Croft, P., Jackson, A., Mac Cartney, C. and Murray, M.A. 2000. Agro-pastoralist colonization of Cyprus in the 10th millenium BP: initial settlement. *Antiquity*, 74, 844-853.
- Peltenburg, E., Croft, P., Jackson, A., Mac Cartney, C. and Murray, M.A. 2001. Well Established Colonists: Mylothkia 1 and the Cypro Pre Pottery Neolithic B, in S. Swiny (ed.), *The earliest prehistory of Cyprus from colonization to exploitation*. Boston, Caari Monograph Series, 5, 61-93.
- Redman, C. 1973. Early Village Technology. A View Through the Microscope. *Paleorient*, 1/2, 249-261.
- Schroeder, B. 1991. Natufian in the Central Beqaa Valley, Lebanon, in O. Bar Yosef and F. Valla (eds.), *the Natufian culture in the Levant*. Michigan, Ann Arbor International Monographs in Prehistory, Archaeological Series, 1, 43-80.
- Şevketoğlu, M. 2002. Akanthou Arkosyko (Tatlisu-Ciftlikdüzü) the Anatolian Connections in the 9th millennium BC, in W.H. Waldren and J.A. Enseayt (eds.), *World Islands in Prehistory, International Insular Investigations*. Oxford, BAR International Series 1678, 98-106.
- Sidéra, I. 1998. Nouveaux éléments d'origine proche orientale dans le Néolithique ancien Balkanique : analyse de l'industrie osseuse. *Préhistoire d'Anatolie, Genèse de deux mondes*. Liège, ERAUL 85, 215-239.
- Sidéra, I. 2004. Exploitation de l'os au Néolithique dans les bassins parisien et rhénan, in D. Ramseyer (ed.), *Matières et techniques*, Cahier XI, Fiche de la Commission de nomenclature sur l'industrie de l'os préhistorique. Paris, Edition de la Société Préhistorique Française, 163-171.
- Sidéra, I. 2005. Technical Data, Typological Data: a Comparison, in H. Luik, A.M. Choyke, C.E. Batey and L. Lõugas (eds.), *From Hooves to Horns, from Mollusc to Mammoth, Manufacture and Use of Bone Artefacts from Prehistoric Times to the Present*, Proceedings of the 4th Meeting of the ICAZ Worked Bone Research Group, Tallinn 26 – 31 August 2003. Tallinn, Muinasaja teadus 15, 81-90.
- Stordeur, D. 1974. Objets dentés en os de Mureybet (Djézireh, Syrie) des phases IB à III : 8 400 à 7 600 BC. *Paléorient*, 2/2, 437-442.
- Stordeur, D. 1978. L'outillage osseux, in M.-C. Cauvin et D. Stordeur (eds.), *Les outillages lithiques et osseux de Mureybet (Syrie)*. Cahier de l'Euphrate n° 1, 81-101.
- Stordeur, D. 1982. L'industrie osseuse de la Damascène du VIIe au VIe millénaire, in H. Camps-Fabrer (ed.), *L'industrie en os et en bois de cervidé durant le Néolithique et l'Age des métaux*. 2^e réunion du groupe de travail n° 3 sur l'industrie de l'os préhistorique, Saint Germain en Laye, Editions du CNRS, 9-25.
- Stordeur, D. 1984. L'industrie osseuse de Khirokitia, in A. Le Brun (ed.), *Fouilles récentes à Khirokitia (Chypre) 1977-1981*. Paris, Edition Recherche sur les Civilisations, Mémoire n° 41, 129-144.
- Stordeur, D. 1988a. L'industrie osseuse de Cafer dans son contexte anatolien et proche oriental. Note préliminaire, in Round table on Aceramic Neolithic in South East Turkey, Istanbul 1986. *Anatolica XV*, 203-213.
- Stordeur, D. 1988b. *Outils et armes en os du gisement natoufien de Mallaha (Eynan) Israël*. Paris, Mémoires et travaux du centre de Recherche français de Jérusalem n° 6, Association Paléorient.
- Stordeur, D. 1994. Outils et parures en os de Ganj Dareh (Iran, VIIIe millénaire B.C.). *Cahiers de l'Euphrate*, 7, Editions Recherche sur les civilisations, 245-296.
- Stordeur, D. 1995. L'industrie osseuse d'Aswad, in H. de Contenson (ed.), *Aswad et Ghoraifé, sites néolithiques en Damascène (Syrie) aux IXe et VIIIe millénaires avant l'ère chrétienne*. Beyrouth, Institut Français d'Archéologie du Proche-Orient, Bibliothèque archéologique et historique 137, 313-317.
- Stordeur, D. 1996. Los objetos de hueso, in M. Molist (ed.), *Tell Halula (Siria), un yacimiento neolitico del valle medio del Eufrates*. Campanas de 1991 y 1992. Instituto del Patrimonio Historico Español, 115-123.
- Stordeur, D. 2003. De la vallée de l'Euphrate à Chypre ? A la recherche d'indices de relations au Néolithique, in J. Guilaine et A. Le Brun (eds.), *Le Néolithique de Chypre*. Actes du Colloque International, organisé par le Département des Antiquités de Chypre et l'Ecole

Française d'Athènes, Nicosie 17 au 19 mai 2001. Paris, Bulletin de Correspondance Hellénique supplément 43, 353-372.

Todd, I.A. 1987. *Vasilikos Valley Project 6: Excavations at Kalavastos-Tenta I*. Göteborg, Studies in Mediterranean Archaeology 71/6.

Todd, I.A. 2001. Kalavastos-*Tenta* Revisited, in S. Swiny (ed.), *The earliest prehistory of Cyprus from colonization to exploitation*. Boston, Caari Monograph Series, 5, 95-108.

Todd, I.A. 2003. Kalavastos-*Tenta*: a Reappraisal, in J. Guilaine et A. Le Brun (eds.), *Le Néolithique de Chypre*. Actes du Colloque International, organisé par le Département des Antiquités de Chypre et l'Ecole Française d'Athènes, Nicosie 17 au 19 mai 2001. Paris, Bulletin de Correspondance Hellénique supplément 43, 35-44.

Vigne, J.-D., Carrère, I. and Guilaine, J. 2003. Unstable Status of Early Domestic Ungulates in the Near East: the Example of Shillourokambos (Cyprus, IX-VIIIth millennia cal. BC), in J. Guilaine et A. Le Brun (eds.), *Le Néolithique de Chypre*. Actes du Colloque International, organisé par le Département des Antiquités de Chypre et l'Ecole Française d'Athènes, Nicosie 17 au 19 mai 2001. Paris, Bulletin de Correspondance Hellénique supplément 43, 239-252.

Voigt, M.M. 1983. *Hajji Firuz Tepe, Iran: the Neolithic Settlement*. University of Pennsylvania, University Museum Monograph 50.